

Chapter 4

Monitoring of Industrial Pollution

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Monitoring of industrial pollution encompasses monitoring by WBPCB of the industrial emission/ effluents and disposal of hazardous wastes as per the applicable norms. WBPCB was also to conduct periodical inspection through the regional offices to assess compliance of the conditions stipulated in EC/ CTOs. This monitoring extends to assessing environment quality parameters for air, water, soil *etc.*

This chapter points out the deficiencies in the monitoring measures followed by appropriate authorities. During course of audit, cases of non-installation of Air Quality Monitoring Systems, Non-monitoring of effluents being discharged by Grossly Polluting Industries in Ganga Basin, insufficient infrastructural arrangements for monitoring were noticed. In the absence of regular monitoring by WBPCB, Joint Physical Inspections of the Hazardous Waste generating industries was taken up. Outcome of these Inspections has also been incorporated in this chapter.

4.1 Post-Environment Clearance monitoring by SEIAA

ECs are contingent on environment protection measures to be implemented by the project proponent like installation of sewage treatment plants, air pollution control measures like sprinklers, plantation *etc.* WBPCB monitors whether the conditions on which the EC was given is being met by the project proponent. According to EIA Notification 2006 the project proponents would submit half-yearly (June and December) compliance reports of the EC to the SEIAA. All such compliance reports submitted by the project authority would be public documents and were also to be displayed on the website of the SEIAA. DOE, GoWB constituted a Committee for monitoring the compliance of EC's conditions imposed by SEIAA.

Audit observed that out of 64 category 'B' industries which were granted EC by SEIAA during 2012-17, no industry had ever submitted their compliance reports to it. Audit further observed that the Monitoring Committee had not met even once during 2012-17 to monitor these industries. As such, there was no effective mechanism to check whether pollution control measures stipulated in the ECs were implemented. Further, absence of monitoring also inhibited any deterrence for non-compliance as the violators were not identified for further action.

4.2 Air Quality Monitoring (AQM) in industrial areas of the State

During October 2012 to December 2015, WBPCB monitored air quality through 24 manual stations in the State. Number of stations subsequently increased to 72 in January 2016 including 31 stations in industrial areas like Asansol, Durgapur, Haldia, Howrah *etc.* Adequacy of Air quality monitoring in these areas were discussed below:

4.2.1 Ambient Air Quality monitoring as per the standards

CPCB notified⁹⁴ (November 2009) National Ambient Air Quality Standards for monitoring of air quality wherein 12 pollutants⁹⁵ known as hazardous to human being, vegetation and animals were to be continuously monitored through monitoring stations.

- Audit observed that during 2015-17, only in nine stations out of total 72 stations, all the 12 pollutants were being monitored. Whereas, in four stations, four pollutants⁹⁶ and in remaining 59 stations three pollutants⁹⁷ were being monitored.
- Further, as per the Guidelines for Ambient Air Quality Monitoring (AAQM) of CPCB of April 2003, selection of site for setting up of AAQM stations was to be done after studying the sources and emissions of the air pollution along with various factors⁹⁸. WBPCB, however, had not followed the criteria in selection of the sites. Only the height, distance from road and free flow of air were considered during selection of the sites for the new stations.
- Out of the 12 pollutants to be monitored, only three pollutants (PM₁₀, SO₂ and NO₂) were being monitored at all 72 stations. Analysis of the available monitoring data during 2015-16 revealed that PM₁₀⁹⁹ exceeded the permissible limit (60 µg/m³) in 31 stations. Due to non-monitoring of other pollutants the actual level of pollution could not be ascertained by the Department for taking control measures.

The Department stated (December 2017) that the Board had identified the major air polluting industries and monitors them on regular basis. However, the fact remained that WBPCB did not monitor all parameters of air quality under NAAQS. Impact of pollutants like sulphur dioxide, lead, ammonia, benzene etc., which cause serious damage to health, remained unassessed.

4.2.2 Continuous Air Quality Monitoring

During 2012-17, WBPCB had operated five Continuous Ambient Air Quality Monitoring Stations (CAAQMS)¹⁰⁰ and one mobile laboratory. Since 2012, the mobile laboratory was not utilised due to lack of maintenance and upkeep. The Department stated (December 2017) that the mobile Laboratory could not be made functional due to prohibition on use of old vehicles. The reply was not tenable as no effort was taken by the Department to replace the old vehicle.

- CPCB approved (January and February 2014) two CAAQMS at Howrah and Asansol industrial area. Accordingly, CPCB transferred (March 2014) ₹ 1.10 crore for the two stations to be commissioned within 10 months from the date of receiving the fund. It directed (July 2014) to complete tendering

⁹⁴ No- B-29016/ 20/90/ PCI-I.

⁹⁵ Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂), Respirable Suspended Particulate Matter (RSPM / PM₁₀), Fine Particulate Matter (PM_{2.5}), Ozone (O₃), Lead (Pb), Carbon Mono Oxide (CO), Ammonia (NH₃), Benzene (C₆H₆), Benzo[a]Pyrene (BaP), Arsenic (As) and Nickel (Ni).

⁹⁶ PM_{2.5}, PM₁₀, SO₂ and NO₂.

⁹⁷ PM₁₀, SO₂ and NO₂.

⁹⁸ Health and demographic information, population growth, meteorological information, Isopleths distribution, ambient concentration, emission densities and land use pattern.

⁹⁹ Particulate Matter of size between 2.5 to 10 microns, responsible for upper respiratory tract distress.

¹⁰⁰ Two in Kolkata, one each in Howrah, Haldia and Durgapur.

by November 2014 (within four months) and commissioning by March 2015 (within four months). WBPCB selected (February 2015) two sites and awarded (July 2016) the work to a private company. **The work was not completed till July 2017. Audit observed that WBPCB had taken 20 months to award the work as against the stipulated period of four months.** This was primarily because of delay in constituting of committee, finalization of tender document, advertising, tendering, *etc.* Further, progress of the work got delayed due to failure of WBPCB to hand over clear site.

In reply, the Department stated (December 2017) that installation and commissioning of the stations at Howrah and Asansol has now been completed. The reply was not tenable as the Department failed to provide the exact date of commissioning. However, the online data from these stations were also not available in the National Air Quality Index of CPCB.

- CPCB further approved six¹⁰¹ CAAQMS in April 2016. Subsequently it reduced (February 2017) it to two as WBPCB failed to provide sites as per the criteria of CPCB. Audit observed that despite number (June and July 2016) of requests from CPCB, WBPCB failed to select sites according to criteria. As a result, CPCB was compelled to dilute the standards and the number of CAAQMS was reduced due to non-preparedness of WBPCB regarding site selection. WBPCB selected (April 2017) only two sites¹⁰², **however, none of the projects had been initiated as of January 2018.**

Thus, WBPCB did not take adequate measures for compliance of the order of the CPCB for online continuous emission for effective monitoring of the highly polluting industrial areas of the State.

4.3 Monitoring of Industrial Effluents

4.3.1 Monitoring of effluents of Grossly Polluting Industries of Ganga Basin

CPCB directed (February 2014) that to strengthen the monitoring mechanism of Ganga Basin industries, all the 17 categories of Grossly Polluting Industries (GPIs) had to install Online Continuous Effluents Monitoring Systems (OCEMS) and upload the monitoring data to the CPCB website by March 2015. Besides, WBPCB would install the necessary software and hardware for centralised data collection, analysis and corrective actions.

WBPCB undertook (November 2016) monitoring of 43 GPIs in the Ganga Basin. Monitoring included consent management, compliance to discharge parameters and installation of the OCEMS. It reported the compliance to CPCB for five¹⁰³ quarters. CPCB directed (January 2017) WBPCB to identify all the industries, which fell in the 17 categories of GPIs, as defined by CPCB. Accordingly, WBPCB identified (January 2017) 131 industries, which fell within this classification.

Audit observed that during March 2015 to December 2016, WBPCB had monitored only 33 per cent of the required industries (43 units).

¹⁰¹ Five in Kolkata and one in Howrah.

¹⁰² Coal India Limited office in Rajarhat and School of Environmental Studies, Jadavpur University, in Kolkata.

¹⁰³ Apr - Jun 2016, Jul - Sep 2016, Oct - Dec 2016, Jan - Mar 2017, Apr - Jun 2017.

The limited monitoring by it also revealed that 12 units¹⁰⁴ had exceeded the standards of discharge by 5 to 17 times. From the available monitoring reports of the 131 GPIs for January – March 2017, it was observed that 80 units had not complied with the discharge standards while 103 units had not installed online monitoring system.

WBPCB issued show cause notices to these non-complying units but had not issued any directions nor taken any legal action. As a result, these units continued to pollute the River Ganga, with disregard to the norms.

The Department stated (December 2017) that all the 131 units under 17 categories of industries had been directed to install OCEMS as per the guidelines of CPCB. It also stated that CPCB had issued closure order against the industries which had not installed online monitoring systems. However, no information about the closure of industries under these orders was provided.

4.3.2 Installation of online automatic monitoring system

WBPCB took up (January 2015) installation of Online Automatic Monitoring System (OAMS) in 43¹⁰⁵ GPIs in the first phase on priority basis for completion by March 2015. WBPCB also proposed (January 2015) to establish a Data Centre at its headquarters for monitoring the data generated from the OAMS. As of April 2017, the Data Centre for online monitoring of the data generated from the OAMS was yet to be established and only 38 units had installed the OAMS. **Thus, in absence of any Data Centre, online monitoring of the data generated through the installed OAMS could not be conducted.**

In reply, the Department stated (December 2017) that 42 industries have installed OAMS and WBPCB had initiated the process for receiving real time effluent monitoring data centrally at the head office of WBPCB from these GPIs. However, the fact remains that even after more than two years, the Department could not establish the Data Centre.

4.4 Monitoring of Hazardous waste

According to Hazardous Waste (Management, Handling and Trans-boundary) Rules, 2016 (HWMHT Rules) notified under EP Act, WBPCB is responsible to grant and renew authorisation of recyclers/ re-processors. It is also to monitor compliance of various provisions and conditions of authorisation, implement programmes to prevent/ minimise the generation of hazardous wastes and initiate actions against the violators. Further, the Rules provides that the occupier¹⁰⁶ generating hazardous wastes shall send annual return to WBPCB.

4.4.1 Non-submission of Annual returns on Hazardous Waste

As of March 2017, records of WBPCB showed that out of 958 HW generating units¹⁰⁷, authorisation of 822 units was valid whereas authorisation of 136 *i.e.* 14 *per cent* units were expired. Besides, there was no record of the number of units, which filed Annual Return of HW management during 2012-17.

¹⁰⁴ Durgapur Projects Ltd, , Durgapur Steel Plant, Uniglobal Paper, India Paper and Pulp, PepsiCo, Exide Industries, Gun and Shell Factory, Indian Oil Corporation, Ordinance Factories, Dhunsuri, United Breweries and A B Mayuri.

¹⁰⁵ 17 categories grossly polluted industries.

¹⁰⁶ As per HWMHT Rules, “occupier” in relation to any factory or premises, means a person who has, control over the affairs of the factory or the premises and includes in relation to any hazardous waste the person in possession of the hazardous waste.

¹⁰⁷ In June 2017, a consultant identified 952 industries as HW generating units in the State.

This posed immense risks to environment and human health.

In reply, the Department stated (December 2017) that 389 units had filed Annual Returns for the year 2016-17. The reply was not tenable as at the time of Audit, the WBPCB could not produce any records in this regard. The Department had not provided any detail about action taken against the remaining 569 (59 per cent) defaulting units.

4.4.2 Joint physical verification of industries

During the course of audit, joint physical verifications of the industries were conducted. Violations of the stipulated norms in management of Hazardous Waste were noticed as discussed in the following observations:

(i) Zinc Smelter Industry-M/s. Industrial Perforation (I) Pvt. Ltd.

The unit is engaged in fabrication and galvanizing of earthing materials, cable trays, etc. The maximum Effluent Treatment Plant (ETP) sludge accumulating to 806 kg and 572 kg was undisposed in the premises of the unit for 24 months (April 2012 to March 2014) and 21 months (April 2014 to December 2015) respectively against the stipulated period of 90 days.

Between April 2012 and March 2015, some of hazardous wastes like Zinc Dross¹⁰⁸ and Zinc Ash were disposed at intervals of five to seven months, which accumulated to 3,990 kg and 6,625 kg. Further, during 2015-16 Zinc Dross and Zinc Ash were not disposed at all, which accumulated to 3,990 kg and 6,625 kg respectively.

In reply, the Department stated (December 2017) that necessary steps were being taken by WBPCB to increase vigilance and ensure that all the units comply with the storage provisions as laid down in the Rules.

(ii) Sponge Iron Industry - M/s. K B Sponge Iron Limited

The unit received EC in February 2016 for expansion of capacity of induction furnace and continuous casting machine from SEIAA. The unit was operating



Fig 4.1 : Spillage of Oil and Grease within the premises of M/s. K. B. Sponge Iron Limited

without authorisation for handling hazardous waste even though it was generating waste like used oil. The unit was not submitting return of hazardous waste (Form 4), environment statement (Form V) or EC compliance statement. The waste was found to be stored indiscriminately in the open within the premises.

Used oil spillage was also noticed in the storing point during physical verification.

¹⁰⁸ Mineral waste that accumulates on the surface of the molten metal.

The Department stated (December 2017) that directions were issued to the unit for obtaining Hazardous Waste Authorisation.

(iii) Pharmaceutical Sector – M/s. East India Pharmaceuticals Limited

Authorisation of hazardous waste of M/s. East India Pharmaceuticals Limited had expired in March 2011. Thereafter, the unit had not renewed Hazardous Waste Authorisation. During 2012-16, the unit had not disposed HW at regular



Fig 4.2 : Storing of HW in M/s. East India Pharmaceuticals Limited

intervals and the closing balance ranged between 14.41 MT and 16.90 MT. Against prescribed disposal within three months, the unit disposed HW legally only six times during 2012-13 to 2016-17 with no disposal in 2012-13. The last disposal of HW was done in November 2016. Joint inspection revealed that hazardous waste like used charcoal, used oil were stored in open.

Besides, huge accumulation of HW was also stored in the premises.

The Department stated (December 2017) that notices were issued by the WBPCB for non-compliance in HW disposal.

(iv) Management of Hazardous wastes of Calcutta Leather Complex (CLC)

EC (April 2000) of CLC *inter-alia* stipulated that HW chrome discharge generated from the tanneries were to be recovered and reused. A secured landfill was also to be set up for disposal of HW. Audit observed that 799 MT of Chrome recovered in the Common Chromium Recovery Unit during 2012-17 was taken by the operation and maintenance vendor of the Unit. Thus, the Chromium recovered was not reused in violation to the EC condition.



Fig 4.3 :Hazardous sludge from CETP in CLC

Hazardous sludge from CETP was to be stored in designated space and was to be disposed within 90 days. During joint physical verification audit observed that in deviation to the storage rules, the sludge was stored in open filter press area in absence of any designated Hazardous waste storage.

In reply, the Department stated (December 2017) that the matter of reusing the recovered chrome from the common chrome recovery unit by the tanneries will be taken up with CLC Tanner's Association. Regarding storage of HW, the Department stated that at present the sludge storage pits were not being used for lack of access and the matter was brought to the notice of CLC Tanner's Association.

In Joint Physical Verification of all these cases, it was noticed that the Department did not have a mechanism to keep check and act proactively. Department assured to take action against only the defaulting units pointed out by Audit.

4.5 Monitoring by the WBPCB

During the period from 2012-13 to 2016-17, the Board of WBPCB was constituted thrice¹⁰⁹ comprising of Chairman and a Member Secretary along with the departmental Secretaries of Environment, Commerce and Industries (C&I), Transport, Urban Development (UD) and Science and Technology (S&T) Departments. Besides, Mayors and Executives of five highly polluted areas¹¹⁰ and five¹¹¹ other members were also nominated to the Board.

4.5.1 Inadequate inspection due to lack of infrastructure and manpower

MOEF&CC directed (December 1999) that State Board may chalk out the programme of inspection or sampling by their staff in such a manner that all the units are covered for vigilance and monitoring purposes. There are total 47,894 industries in the State including 5452 Red category of industries. During 2013-17, it was observed that WBPCB had failed to cover even the red category of industries due to inadequate number of regional offices of WBPCB, environmental laboratories as well as technical manpower as discussed below:

(a) Monitoring through Regional offices

WBPCB, in 155th meeting observed (November 2012) the need for expansion of Regional Offices (ROs) network and decided to establish two ROs in North Bengal and Burdwan. Again, in Vision 2013-16, WBPCB planned to establish ROs in Raghunathpur and Khargapur industrial zone, which were being looked into by Asansol and Haldia ROs respectively. WBPCB operated from 11 ROs covering 23 districts in West Bengal with an average of one RO covering two districts. It was observed that RO (Malda) controls four districts while Durgapur RO controls three districts. Besides, Asansol and Haldia ROs cover two districts each. **However, work of establishment of none of the four ROs (North Bengal, Burdwan, Raghunathpur and Khargapur) was taken up till date (December 2017) to strengthen its surveillance infrastructure.**

In reply, the Department stated (December 2017) that proposals for setting up three more Regional/Sub-Regional offices were under consideration from May 2017. However, the Department did not respond to the audit observation about non-establishment of ROs planned earlier.

¹⁰⁹ January 2010, February 2013 and June 2016.

¹¹⁰ Kolkata, Howrah, Burdwan, Asansol, Durgapur.

¹¹¹ Non-official members with interests of agriculture, fishery or industry or trade, PCCF, Forest Department and MD, WBPDC representing companies controlled or managed by the State Government.

(b) Inadequate technical manpower

MoEF&CC observed (August 2011) that with the passage of time the responsibility of SPCB has increased manifold which was not supported by sufficient technical manpower. Hence strengthening of Board in terms of man power and expertise after conducting a study was called for.

Out of sanctioned strength of 361 persons, WBPCB had (January 2017) 180 men in position. WBPCB had sanctioned strength of 60 technical manpower (16.67 *per cent*). The infrastructure of monitoring and surveillance of 47,894 industries including 5,452 red category was vested on 39 technical officers deployed in 11 Regional Offices. As such, each technical officer in the field was responsible for an average of 1,228 industries or 139 red industries. **WBPCB had not done any assessment of adequacy of manpower during 2012-17.** Besides, it had conducted last recruitment of engineers in 2005.

In reply, the Department stated (December 2017) that proposal for filling up the vacant posts were under consideration.

(c) Environmental Laboratories

(i) Regional laboratories

WBPCB operated five¹¹² Regional laboratories in districts and a Central Laboratory in Head Office. MoEF&CC directed (August 2011) that all SPCB Laboratories and/ Central Laboratories must acquire accreditation¹¹³ under Environment (Protection) Act, 1986 , alongwith Occupational Health Hazard and Safety Management System- 18001 (OHSAS) Certification within one year. In the Vision of 2013-16, WBPCB proposed to upgrade the analytical facility of Central, Haldia and Malda laboratories for analysis of critical environmental parameters and to receive National Accreditation Board for Testing and Calibration Laboratories (NABL) accreditation of Central, Barrackpore and Durgapur laboratories. Audit observed the following:

- Only the Central laboratory was upgraded and had received (November 2013) NABL accreditation. It procured (2010-13) sophisticated instruments amounting to ₹ 9.95 crore with funds from GoI to upgrade the analytical facility. However, **WBPCB did not maintain any log books of the instruments purchased.** As a result, utilisation of the instruments could not be ascertained. In reply, the Department stated (December 2017) that log books were maintained for all main instruments. The reply was not tenable as records regarding maintenance of log books could not be produced to audit.
- Upgradation and NABL accreditation process was not initiated for the other five laboratories. None of the five laboratories were recognised as Environment Laboratories by MoEF&CC or ISO 9001 alongwith OHSAS accreditation.
- During reassessment of Central laboratory, NABL observed (July 2017) deficiency in quality control and expertise in Ion Chromatography parameters. **WBPCB failed to take corrective action and was compelled to withdraw the parameter from the scope of accreditation.**

¹¹² Barrackpore, Hooghly, Durgapur, Haldia and Siliguri.

¹¹³ ISO 17025 (NABL Accreditation) or ISO 9001.

In reply, the Department stated (December 2017) that the process of obtaining NABL accreditation for Durgapur and Barrackpore Laboratories and recognition of its laboratories from MoEF&CC would be initiated shortly.

(ii) Private laboratories for monitoring of industrial pollution

WBPCB also recognised private laboratories engaged in environmental monitoring. During 2012-17, two Technical Advisory Committees (TACs) conducted (January 2012 and March 2015) the recognition procedure. The TAC prepared an outline of procedure for scrutiny¹¹⁴, evaluation and inspection¹¹⁵ of laboratory before recommending for recognition. WBPCB recognised 15 private laboratories between April 2012 and June 2015 and 22 between July 2015 and July 2017.

Audit observed that the outline of procedure of TAC did not contain provision of extension. However, the recognition tenure of the laboratories was extended several times without the approval of the Board. Audit observed that during 2012-14, WBPCB granted extension to 15 laboratories without conducting any inspection. WBPCB had inspected (June 2015) only seven out of the 19 laboratories before recognising (July 2015) the laboratories. The subsequent extensions (June 2015 and 2017) were also not based on inspection.

Audit further observed that WBPCB itself found (2012-13) six laboratories were deficient in instrumentation, seven laboratories were lacking expertise and all of them were lacking quality control criteria.

WBPCB observed (June 2015) deficiency in sample storing facility, reference materials, documentation, and quality control in respect of the 23 applicant laboratories. However, WBPCB recognised all the laboratories. Documents regarding corrective action were not available on records.

In reply, the Department stated (December 2017) that action would be taken by the WBPCB to address the deficiencies pointed by Audit.

¹¹⁴ Laboratory area, availability of qualified manpower, availability of expertise, adequacy of instruments and equipment, past performance, etc.

¹¹⁵ Infrastructure, firefighting arrangement, first aid arrangement, status of instruments and equipment, expertise claimed, etc.

